

# HEATHKIT<sup>®</sup> MANUAL

*for the*

## STATION SPEAKER Model SP-99

595-3249



HEATH COMPANY • BENTON HARBOR, MICHIGAN

## HEATH COMPANY PHONE DIRECTORY

The following telephone numbers are direct lines to the departments listed:

Kit orders and delivery information ..... (616) 982-3411  
Credit ..... (616) 982-3561  
Replacement Parts ..... (616) 982-3571

### Technical Assistance Phone Numbers

8:00 A.M. to 12 P.M. and 1:00 P.M. to 4:30 P.M., EST, Weekdays Only  
Audio ..... (616) 982-3310  
Amateur Radio ..... (616) 982-3296  
Test Equipment, Weather Instruments and  
Home Clocks ..... (616) 982-3315  
Television ..... (616) 982-3307  
Aircraft, Marine, Security, Scanners, Automotive,  
Appliances and General Products ..... (616) 982-3496  
Computers — Hardware ..... (616) 982-3309  
Computers — Software:  
Operating Systems, Languages, Utilities ..... (616) 982-3860  
Application Programs ..... (616) 982-3884



## YOUR HEATHKIT 90-DAY LIMITED WARRANTY

### Consumer Protection Plan for Heathkit Consumer Products

Welcome to the Heath family. We believe you will enjoy assembling your kit and will be pleased with its performance. Please read this Consumer Protection Plan carefully. It is a "LIMITED WARRANTY" as defined in the U.S. Consumer Product Warranty and Federal Trade Commission Improvement Act. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

#### Heath's Responsibility

**PARTS** — Replacements for factory defective parts will be supplied free for 90 days from date of purchase. Replacement parts are warranted for the remaining portion of the original warranty period. You can obtain warranty parts direct from Heath Company by writing or telephoning us at (616) 982-3571. And we will pay shipping charges to get those parts to you... anywhere in the world.

**SERVICE LABOR** — For a period of 90 days from the date of purchase, any malfunction caused by defective parts or error in design will be corrected at no charge to you. You must deliver the unit at your expense to the Heath factory, any Heathkit Electronic Center (units of Veritechnology Electronics Corporation), or any of our authorized overseas distributors.

**TECHNICAL CONSULTATION** — You will receive free consultation on any problem you might encounter in the assembly or use of your Heathkit product. Just drop us a line or give us a call. Sorry, we cannot accept collect calls.

**NOT COVERED** — The correction of assembly errors, adjustments, calibration, and damage due to misuse, abuse, or negligence are not covered by the warranty. Use of corrosive solder and/or the unauthorized modification of the product or of any furnished component will void this warranty in its entirety. This warranty does not include reimbursement for inconvenience, loss of use, customer assembly, set-up time, or unauthorized service.

This warranty covers only Heath products and is not extended to other equipment or components that a customer uses in conjunction with our products.

SUCH REPAIR AND REPLACEMENT SHALL BE THE SOLE REMEDY OF THE CUSTOMER AND THERE SHALL BE NO LIABILITY ON THE PART OF HEATH FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO ANY LOSS OF BUSINESS OR PROFITS, WHETHER OR NOT FORSEEABLE.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

#### Owner's Responsibility

**EFFECTIVE WARRANTY DATE** — Warranty begins on the date of first consumer purchase. You must supply a copy of your proof of purchase when you request warranty service or parts.

**ASSEMBLY** — Before seeking warranty service, you should complete the assembly by carefully following the manual instructions. Heathkit service agencies cannot complete assembly and adjustments that are customer's responsibility.

**ACCESSORY EQUIPMENT** — Performance malfunctions involving other non-Heath accessory equipment, (antennas, audio components, computer peripherals and software, etc.) are not covered by this warranty and are the owner's responsibility.

**SHIPPING UNITS** — Follow the packing instructions published in the assembly manuals. Damage due to inadequate packing cannot be repaired under warranty.

If you are not satisfied with our service (warranty or otherwise) or our products, write directly to our Director of Customer Service, Heath Company, Benton Harbor MI 49022. He will make certain your problems receive immediate, personal attention.



# Heathkit® Manual

for the

## STATION SPEAKER

Model SP-99

595-3249

HEATH COMPANY  
BENTON HARBOR, MICHIGAN 49022

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## INTRODUCTION

The Heathkit Model SP-99 Station Speaker is an accessory that you can use for communications receivers. The 3" speaker is housed in an attractive cabinet whose color and design matches the latest Heathkit transceivers and receivers.

## PARTS LIST

Remove the parts from the carton and check each part against the following list. The key numbers correspond to the numbers on the "Parts Pictorial" (Illustration Booklet, Page 1). Return any part that is in an individual envelope back into the envelope, after you have identified it, until that part is called for in a step. Do not throw away any packing material until you account for all the parts.

To order a replacement part, always include the PART NUMBER. Use the Parts Order Form furnished with this kit. If a Parts Order Form is not available, refer to "Replacement Parts" inside the rear cover of this Manual. For prices, refer to the separate "Heath Parts Price List."

KEY No.	HEATH Part No.	QTY.	DESCRIPTION
------------	-------------------	------	-------------

### METAL PARTS

A1	90-1347-1	1	Cabinet top
A2	90-1331-1	1	Cabinet bottom
A3	203-2233-1	1	Front panel
A4	204-2798	1	Bracket

### HARDWARE

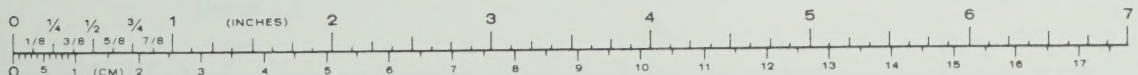
NOTE: The hardware is shown full size so you can place any nut, screw, etc, you are uncertain about over the drawing. Also, the hardware may be packed in more than one envelope. Open all of the envelopes (marked HDW) before you check the hardware against the Parts List.

B1	250-1434	14	#6 × 3/8" self-tapping Phillips screw
B2	250-1425	4	6-32 × 1/2" Phillips screw
B3	252-3	4	6-32 nut
B4	253-60	4	#6 flat washer
B5	254-1	4	#6 lockwasher

KEY No.	HEATH Part No.	QTY.	DESCRIPTION
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### MISCELLANEOUS

C1	73-4	5	Rubber grommet
	73-168	1	1/4" foam tape
	74-47	18"	Double-stick tape
C2	75-853	1	Styrofoam baffle
C3	209-98	1	Grille cloth
C4	261-28	4	Foot
	343-11	48"	Shielded cable
C5		1	Blue and white label
C6	401-210	1	3" speaker
C7	438-4	1	Phono plug
	597-260	1	Parts Order Form
		1	Assembly Manual (See front Page for part number.)
			Solder

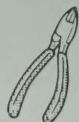




## ASSEMBLY NOTES

### TOOLS

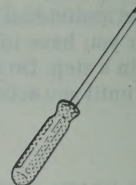
You will need these tools to assemble your kit.



DIAGONAL  
CUTTERS



WIRE  
STRIPPERS



PHILLIPS  
SCREWDRIVER

### OTHER HELPFUL TOOLS



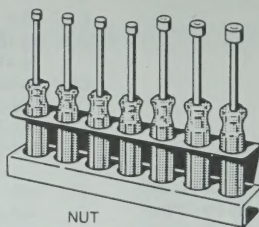
NUT STARTER  
(May Be Supplied  
With Kit)



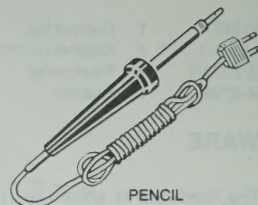
DESOLDERING  
BULB\*



DESOLDERING  
BRAID\*



NUT  
DRIVERS



PENCIL  
SOLDERING IRON  
(22 to 25 WATTS)

\*To Remove Solder From Circuit Connections.

### ASSEMBLY

1. Follow the instructions carefully. Read the entire step before you perform each operation.
2. This kit uses a separate "Illustration Booklet" that contains an Illustration (Pictorial) that is too large for the Assembly Manual. Keep the "Illustration Booklet" with the Assembly Manual.
3. Position all parts as shown in the Pictorial.
4. Solder only when you are instructed to do so.

## STEP-BY-STEP ASSEMBLY

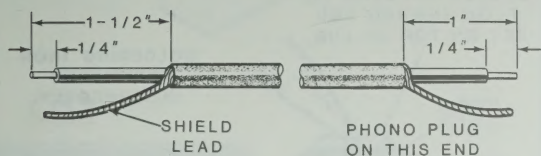
Refer to Pictorial 1 (Illustration Booklet, Page 2) for the following steps.

- ( ) Refer to the inset on the Pictorial and install a rubber grommet into one of the five bracket holes as shown.
- ( ) Similarly install rubber grommets at the four remaining bracket holes.

**NOTE:** When you handle the speaker in the following steps, make sure not to damage the delicate paper cone.

- ( ) Mount the 3" speaker to the bracket with four 6-32  $\times$  1/2" phillips screws, #6 flat washers, #6 lockwashers, and 6-32 nuts. Position the hardware and the speaker terminals as shown. Do not overtighten the hardware.

PREPARE THE ENDS AS SHOWN

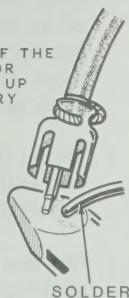


INSERT THE INNER LEAD THROUGH THE PLUG AND WRAP THE SHIELD AROUND THE PLUG.

APPLY HEAT TO THE TIP OF THE PIN ONLY LONG ENOUGH FOR THE SOLDER TO BE DRAWN UP INTO THE PIN BY CAPILLARY ACTION.

SOLDER THE SHIELD ONTO THE PLUG.

CUT OFF EXCESS WIRE FROM THE TIP OF THE PIN.



SOLDER

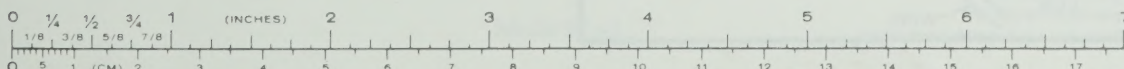
Detail 1A

Refer to Detail 1A for the following four steps.

- ( ) Remove 1-1/2" of outer insulation from one end of the shielded cable and 1" of outer insulation from the other end. Be careful not to cut too deep into the outer insulation or you may cut into the shield wires.
- ( ) Unwrap the outer shield wire from the inner wire at each end of the shielded cable. Twist the outer shield wire strands together and apply a small amount of solder to the end to hold them together.
- ( ) Remove 1/4" of insulation from the inner wire at each end of the shielded cable, and twist the wire strands tightly together. Then apply a small amount of solder to the wire strands as before.
- ( ) Assemble the phono plug to the 1" prepared end of the shielded cable as shown.
- ( ) Insert the other end of the shielded cable through the indicated rubber grommet in the bracket. Tie a loose knot 3" from the end of the shielded cable.

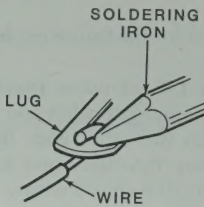
Connect the 1-1/2" prepared end of the shielded cable to the 3" speaker terminals as follows:

- ( ) Inner lead to the positive-marked (+) terminal.
- ( ) Shield lead to the negative-marked (-) terminal.
- ( ) Solder the shielded cable leads to the speaker terminals and cut off the excess lead lengths. Use the procedure shown on the following Page. Do not use more heat than necessary to solder the connections or you could damage the speaker.

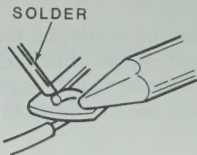




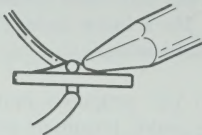
1. Push the soldering iron tip against the wire and the lug. Heat both the wire and the lug for two or three seconds.



2. Apply solder to the wire and the lug, not to the soldering iron. **IMPORTANT:** Let the heat of the wire and lug melt the solder.



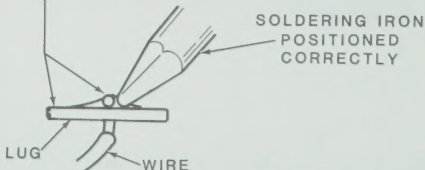
3. As the solder begins to melt, allow it to flow around the connection. Then remove the solder and the iron and let the connection cool.



### A GOOD SOLDER CONNECTION

When both the wire and the lug are heated at the same time, the solder will flow onto the wire and the lug evenly. The solder will make a good electrical connection between the wire and the lug.

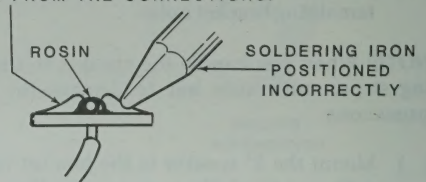
SOLDER FLOWS OUTWARD AND GRADUALLY BLENDS WITH THE WIRE AND LUG.



### POOR SOLDER CONNECTIONS

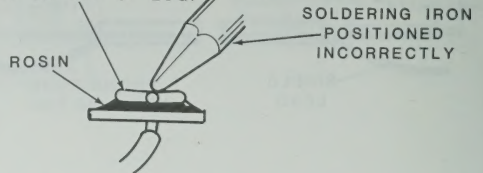
When the wire is not heated sufficiently, the solder will not flow onto the wire as shown above. To correct, reheat the connection and, if necessary, apply a small amount of additional solder to obtain a good connection.

SOLDER DOES NOT FLOW ONTO THE LUG AND WIRE. A DARK ROSIN BEAD SURROUNDS AND INSULATES THE WIRE FROM THE CONNECTIONS.

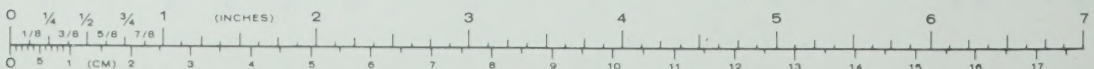


When the lug is not heated sufficiently, the solder will blob on the lug as shown above. To correct, reheat the connection and, if necessary, apply a small amount of additional solder to obtain a good connection.

SOLDER APPEARS TO FLOW INWARD AND SET ON TOP OF LUG.



- ( ) Position the cabinet bottom as shown in the Pictorial. Remove the backing paper from each of the feet and press a foot onto the cabinet bottom at the four corner locations. Keep the edges of the foot 1/4" from the two outside edges of the cabinet.
- ( ) Mount the bracket assembly to the cabinet bottom with four #6 x 3/8" self-tapping phillips screws as shown.
- ( ) Cut two 3" and two 5-3/4" pieces of double-stick tape.

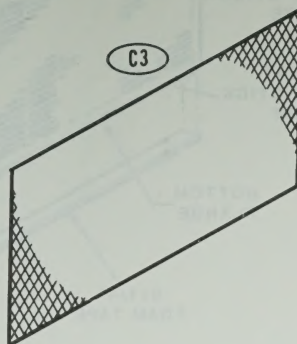
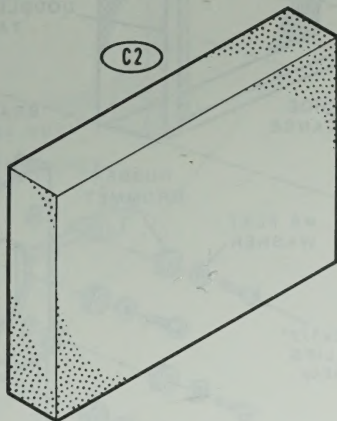
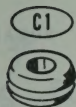
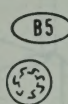
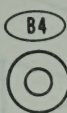
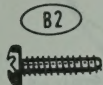




# ON BOOKLET

Part of 595-3249

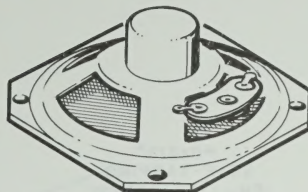
TORIAL



C5



C6



C7

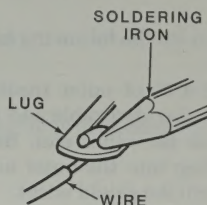


Model SP-99

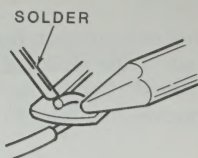
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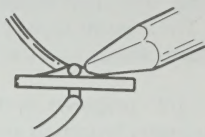
1. Push the soldering iron tip against the wire and the lug. Heat both the wire and the lug for two or three seconds.



2. Apply solder to the wire and the lug, not to the soldering iron. **IMPORTANT:** Let the heat of the wire and lug melt the solder.



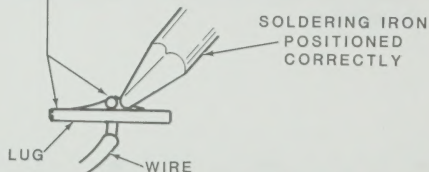
3. As the solder begins to melt, allow it to flow around the connection. Then remove the solder and the iron and let the connection cool.



### A GOOD SOLDER CONNECTION

When both the wire and the lug are heated at the same time, the solder will flow onto the wire and the lug evenly. The solder will make a good electrical connection between the wire and the lug.

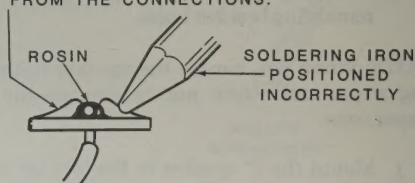
SOLDER FLOWS OUTWARD AND GRADUALLY BLENDS WITH THE WIRE AND LUG.



### POOR SOLDER CONNECTIONS

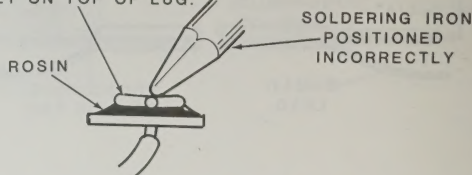
When the wire is not heated sufficiently, the solder will not flow onto the wire as shown above. To correct, reheat the connection and, if necessary, apply a small amount of additional solder to obtain a good connection.

SOLDER DOES NOT FLOW ONTO THE LUG AND WIRE. A DARK ROSIN BEAD SURROUNDS AND INSULATES THE WIRE FROM THE CONNECTIONS.

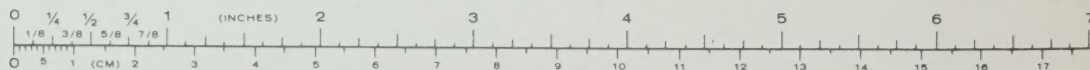


When the lug is not heated sufficiently, the solder will blob on the lug as shown above. To correct, reheat the connection and, if necessary, apply a small amount of additional solder to obtain a good connection.

SOLDER APPEARS TO FLOW INWARD AND SET ON TOP OF LUG.



- ( ) Position the cabinet bottom as shown in the Pictorial. Remove the backing paper from each of the feet and press a foot onto the cabinet bottom at the four corner locations. Keep the edges of the foot 1/4" from the two outside edges of the cabinet.
- ( ) Mount the bracket assembly to the cabinet bottom with four #6 x 3/8" self-tapping phillips screws as shown.
- ( ) Cut two 3" and two 5-3/4" pieces of double-stick tape.

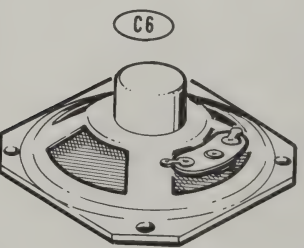
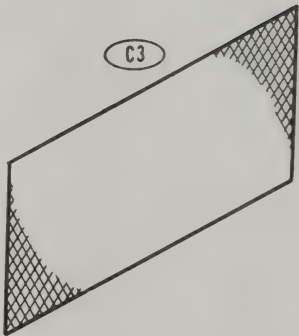
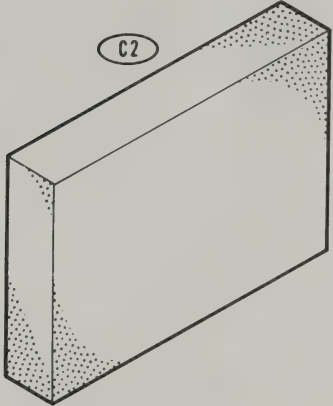
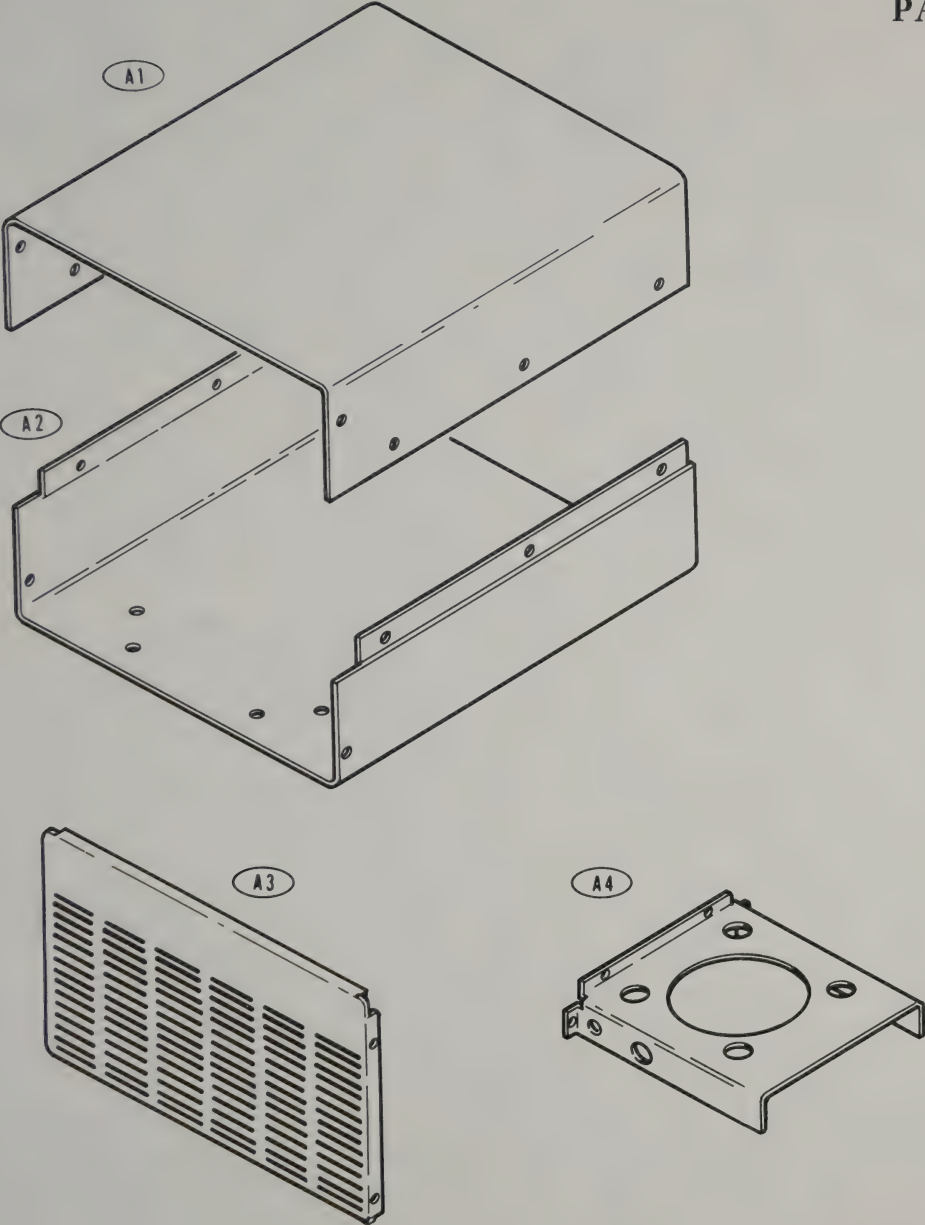




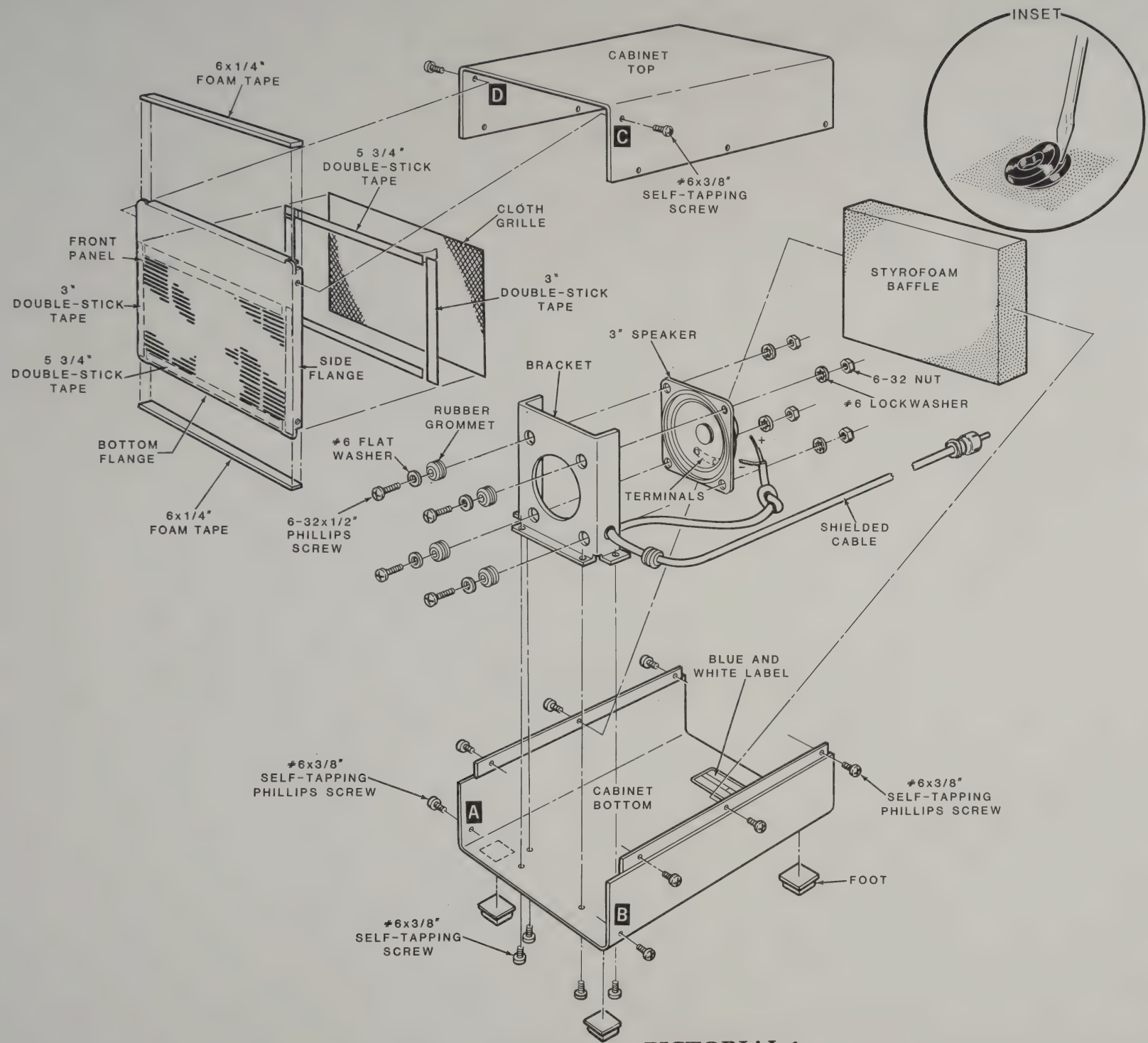
# ILLUSTRATION BOOKLET

Part of 595-3249

## PARTS PICTORIAL



Model SP-99



PICTORIAL 1



- ( ) Position the front panel with the speaker grille as shown. Apply the 3" and 5-3/4" pieces of double-stick tape to the inside of the front panel as shown. Once you press the tape firmly against the panel, remove the backing from the tape.
- ( ) Carefully press the grille cloth onto the double-stick tape so the three sides of the cloth are against the bottom and side front panel flanges.
- ( ) Cut two 6" pieces of 1/4" foam tape.
- ( ) One at a time, remove the paper backing from each 6" piece of 1/4" foam tape and carefully press the tape along the top and bottom front panel flanges as shown.
- ( ) Position the front panel with the grille openings down and mount it to the cabinet bottom at A and B with two #6 × 3/8" self-tapping phillips screws. Do not overtighten the screws.
- ( ) Route the shielded cable along the side of the cabinet bottom. Then install the styrofoam baffle so the sides of the baffle are centered with the center screw holes in the cabinet bottom.
- ( ) Make sure the baffle is perpendicular to the cabinet bottom; then lower the cabinet top onto the cabinet bottom. Install two #6 × 3/8" self-tapping phillips screws at C and D first. Then install the remaining six #6 × 3/8" self-tapping phillips screws in the cabinet. Keep the front edges of the cabinet halves even as you tighten the screws.
- ( ) Remove the backing from the blue and white label and press the label onto the inside of the cabinet bottom at the indicated location. NOTE: Refer to the numbers on this label if you ever have any correspondence with Heath Company regarding this kit.

This completes the assembly of your speaker.

## SPECIFICATIONS

Speaker Size .....	3" round.
Impedance .....	8 ohms.
Frequency Response .....	200 to 5000 Hz.
Magnet Weight .....	4 oz. (11.34 grams).
Cabinet .....	Aluminum w/brown splatter finish.
Dimensions .....	4-1/2" × 6-3/4" × 8" (11.4 × 17.15 × 20.3 cm).
Net Weight .....	1.6 lbs. (.726 kg).
Maximum Wattage .....	1.5 watts rms.

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The Heath Company reserves the right to discontinue products and to change specifications at any time without incurring any obligation to incorporate new features in products previously sold.



# CUSTOMER SERVICE

## REPLACEMENT PARTS

Please provide complete information when you request replacements from either the factory or Heath Electronic Centers. Be certain to include the **HEATH** part number exactly as it appears in the parts list.

## ORDERING FROM THE FACTORY

Print all of the information requested on the parts order form furnished with this product and mail it to Heath. For telephone orders (parts only) dial 616 982-3571. If you are unable to locate an order form, write us a letter or card including:

- Heath part number.
- Model number.
- Date of purchase.
- Location purchased or invoice number.
- Nature of the defect.
- Your payment or authorization for COD shipment of parts not covered by warranty.

Mail letters to: Heath Company  
Benton Harbor  
MI 49022  
Attn: Parts Replacement

**Retain original parts until you receive replacements. Parts that should be returned to the factory will be listed on your packing slip.**

## OBTAINING REPLACEMENTS FROM HEATH ELECTRONIC CENTERS

For your convenience, "over the counter" replacement parts are available from the Heath Electronic Centers listed in your catalog. Be sure to bring in the original part and purchase invoice when you request a warranty replacement from a Heath Electronic Center.

## TECHNICAL CONSULTATION

Need help with your kit? — Self-Service? — Construction? — Operation? — Call or write for assistance. you'll find our Technical Consultants eager to help with just about any technical problem except "customizing" for unique applications.

The effectiveness of our consultation service depends on the information you furnish. Be sure to tell us:

- The Model number and Series number from the blue and white label.
- The date of purchase.
- An exact description of the difficulty.
- Everything you have done in attempting to correct the problem.

Also include switch positions, connections to other units, operating procedures, voltage readings, and any other information you think might be helpful.

**Please do not send parts for testing**, unless this is specifically requested by our Consultants.

Hints: Telephone traffic is lightest at midweek — please be sure your Manual and notes are on hand when you call.

Heathkit Electronic Center facilities are also available for telephone or "walk-in" personal assistance.

## REPAIR SERVICE

Service facilities are available, if they are needed, to repair your completed kit. (Kits that have been modified, soldered with paste flux or acid core solder, cannot be accepted for repair.)

**If it is convenient, personally deliver your kit to a Heathkit Electronic Center. For warranty parts replacement, supply a copy of the invoice or sales slip.**

If you prefer to ship your kit to the factory, attach a letter containing the following information directly to the unit:

- Your name and address.
- Date of purchase and invoice number.
- Copies of all correspondence relevant to the service of the kit.
- A brief description of the difficulty.
- Authorization to return your kit COD for the service and shipping charges. (This will reduce the possibility of delay.)

Check the equipment to see that all screws and parts are secured. (Do not include any wooden cabinets or color television picture tubes, as these are easily damaged in shipment. Do not include the kit Manual.) Place the equipment in a strong carton with at least **THREE INCHES** of *resilient* packing material (shredded paper, excelsior, etc.) on all sides. Use additional packing material where there are protrusions (control sticks, large knobs, etc.). If the unit weighs over 15 lbs., place this carton in another one with 3/4" of packing material between the two.

Seal the carton with reinforced gummed tape, tie it with a strong cord, and mark it "Fragile" on at least two sides. Remember, the carrier will not accept liability for shipping damage if the unit is insufficiently packed. Ship by prepaid express, United Parcel Service, or insured Parcel Post to:

Heath Company  
Service Department  
Benton Harbor, Michigan 49022



HEATH COMPANY • BENTON HARBOR, MICHIGAN  
*THE WORLD'S FINEST ELECTRONIC EQUIPMENT IN KIT FORM*

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